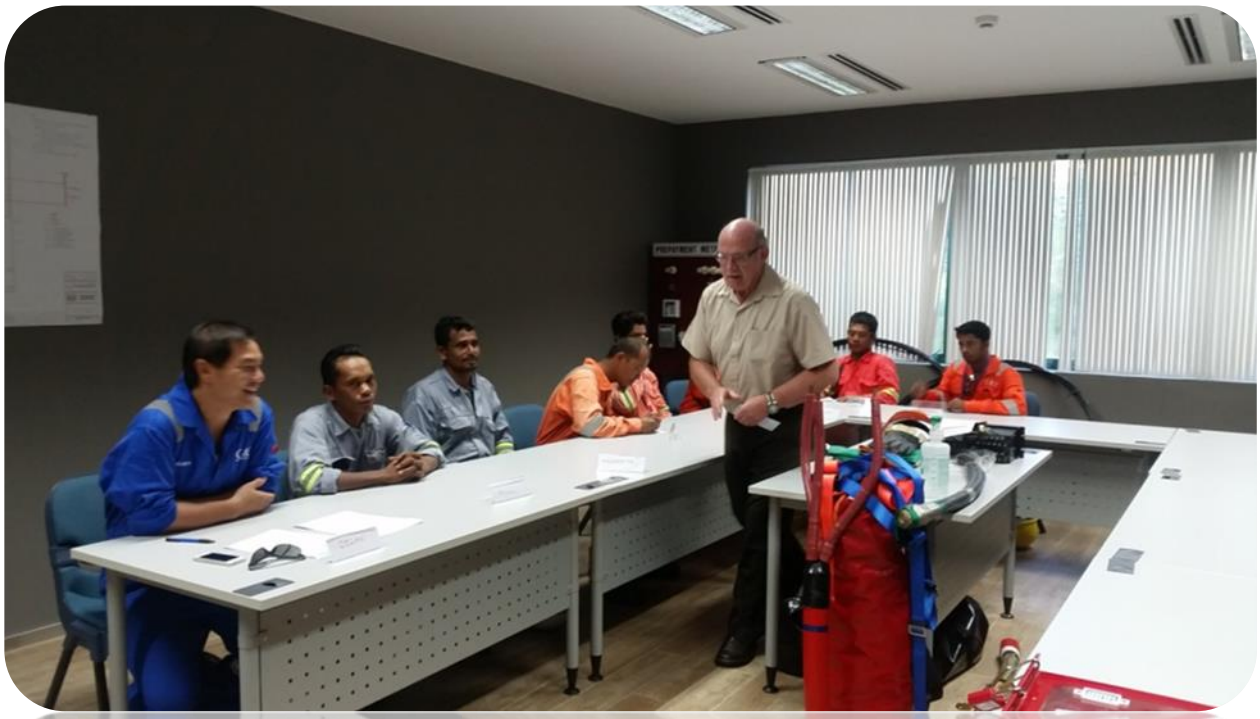
Specialist Courses Offered

by Berakas Power Company Sdn Bhd



شريكة كواس براكس سندريين برحد
BERAKAS POWER COMPANY SDN BHD
Providing Power and Expertise to Serve You

List of Courses
TR-001 Aerial Bundle Conductor
TR-002 Basic Power System Protection
TR-003 Battery Maintenance
TR-005 Cable Identification and Spiking
TR-006 Cable Jointing and Terminations
TR-007 Cable Laying and Trenching
TR-008 Care and Use of Measuring Instruments
TR-009 Chain Saw Use and Tree Cutting
TR-010 Contractor Safety Awareness (G) and (E)
TR-012 Exothermic Welding
TR-013 Fundamentals of Electricity
TR-014 DES Generation Plant Safety Rules
TR-015 Health and Safety at the Workplace
TR-016 High Voltage Switching Applications
TR-017 Locating Underground Cables
TR-019 DES Low Voltage Switching Application
TR-020 Mentor Guidelines and Effective Evaluation Assessment
TR-021 Medium Voltage Switching Applications
TR-022 Pre-Payment Meters
TR-023 Risk Assessment and Method Statements
TR-024 Road Safety Awareness
TR-025 Safe Used of Mobile Tower Scaffolding
TR-026 Safe Work on Transmission Tower
TR-027 Safety Rules
TR-028 System Operating Regulations
TR-031 Work at Heights
TR-032 Fire Watcher
TR-036 Safety Rules Refresher
TR-037 System Operating Regulations Refresher
TR-038 Low Voltage System Applications Domestic & Commercial Installations

Training Code : TR-001

Title : Aerial Bundle Conductors

Duration : 4 Days

Objective : At the end of this course candidates will be able to:

- ✓ Demonstrate their ability to correctly select and use the appropriate tools and equipment to construct and maintain or repair aerial bundle conductors' systems.
- ✓ Understand the minimum requirements of the manufactures.
- ✓ Working adherence to the Safety Rules with minimum risk to all involved in the task.

Index :

1 Course Introduction.
2 Safety Rules.
3 Accidents Minor.
4 Definitions and Terms.
5 General Safety.
6 Basic Safety Restrictions.
7 Work in and Access to Substations.
8 Safety Equipment and Protective Clothing.
9 Work on LV Systems.
10 Work on Live LV Mains and Equipment.
11 Cutting and Trimming of Trees near Overhead Lines.
12 Tools and Equipment.
13 Construction of ABC Systems.
14 Electricity Dispensers.
15 Fault Finding and Maintenance.
16 Consolidation Questions.

Training Code : TR-002

Title : Basic Power System Protection

Duration : 3 Days

Objective : At the end of this course candidates will be able to:

- ✓ List the basic requirements of a successful protection scheme;
- ✓ Understand the different qualities of protection systems;
- ✓ Explain the different methods of earthing;
- ✓ Understand the causes and effects of faults;
- ✓ List and Explain the components of a protection chain;
- ✓ Discuss the purpose and functions of instrument transformers;
- ✓ Understand non-unit protection principles;
- ✓ Understand unit protection principals;
- ✓ Have a clear understanding of relay characteristics.

Index :

1 Introduction
2 Fundamentals Principals of Protection and Components Employed
3 System Earthing
4 Instrument Transformers
5 Protection Relays
6 Non-Unit Protection
7 Unit Protection
8 Relay Interrogation
9 Consolidation Questions

Training Code : TR-003

Title : Battery Maintenance

Duration : 2 Days

Objective : At the end of this course candidates will be able to:

- ✓ Identity the different battery types
- ✓ Have a clear understanding of batter theory
- ✓ Fully under health and safety requirements
- ✓ Successfully maintain the various types of substation batteries

Index :

1 Introduction
2 Hazards Associated with DC Systems
3 Control Systems
4 Storage Battery Operating Principles
5 Nickel Cadmium Batteries
6 Charging Characteristics
7 Maintenance Procedures
8 Battery Safety
9 Battery Testing
10 Consolidation Questions

Training Code : TR-005

Title : Cable Identification & Cable Spiking

Duration : 2 Days

Objective : At the end of this course candidates will be able to:

- ✓ Identify all components of the specific cable identifier and their function.
- ✓ Correctly interpret the System Operating Regulations.
- ✓ Check the identifier for correct functionality before test is conducted.
- ✓ Conduct cable identification test with positive and conclusive results.

Index :

1 Introduction
2 System Operating Regulations
3 Setting up the Cable Identifier
4 Correct Identification procedure
5 Consolidation questions
6 Practical Assessment

Training Code : TR-006

Title : Cable Jointing and Terminations

Duration : 5 Days

Objective : At the end of this course candidates will be able to:

- ✓ Understand the principles of MV cable theory.
- ✓ Have a good understanding of cable types.
- ✓ Correctly select jointing tools and use them correctly during the jointing process.
- ✓ Carry out the jointing and termination process according to best practices and a high standard.

Index :

1 Introduction
2 Power Cable Construction
3 Basic Cable Facts
4 Cross Linking ad Elastomeric Memory
5 Stress Control
6 Tracking and Erosion
7 Insulation Breakdown
8 Cable Preparation
9 Semi Con Removal
10 Trick of the Trade
11 Jointing
12 Terminating
13 Cable System Connection and Shrouds

Training Code : TR-007

Title : Cable Laying & Trenching

Duration : 1 Day

Objective : At the end of this course candidates will be able to:

- ✓ Adhere to Safety Principles:
- ✓ List the correct procedure for the laying of MV cables;
- ✓ Understand Cable Trenching Procedures; and
- ✓ Understand The HSWO 2009 Requirements.

Index :

1 Introduction
2 MOD. The Health Safety and Environment Manual (HSE 10)
3 Cable Laying
4 Preparation for Laying of Cables
5 Use of Dynamic Cone Penetrometer (D.C.P)
6 Consolidation Questions

Training Code : TR-008

Title : Care and Use of Measuring Instruments

Duration : 2 Days

Objective : At the end of this course candidates will be able to:

- ✓ Understand the fundamental of electricity
- ✓ Interpret the markings on the measuring instrument
- ✓ Proper use of the measuring instruments
- ✓ Apply care maintenance to the measuring instruments.

Index :

1 Introduction
2 Precaution
3 Symbol or Marking
4 Understanding on CAT Rating
5 Common Measuring Testing
6 Care of Test Instrument.

Training Code : TR-009

Title : Chainsaw Use and Tree Cutting

Duration : 2 Days

Objective : At the end of this course candidates will be able to:

- ✓ Safety Handle and correctly operated a chainsaw;
- ✓ Understand the procedures for correct care of the chainsaw;
- ✓ Correctly maintain the chainsaw.

Index :

1 Safety Equipment and Clothing.
2 Safety Practices and Hazards.
3 Sharpening.
4 Maintenance.
5 Felling.
6 Limbing.
7 Bucking.

Training Code : TR-010

Title : Contractor Safety Awareness (G) and (E)

Duration : 1 Day

Objective : At the end of this course candidates will be able to:

- ✓ Correctly interpret Safety Rules applicable to entry into Substations, and Live Enclosures.
- ✓ Understand the dangers attached to the entry into such premises.
- ✓ Evaluate the need for and use of protective clothing and safety equipment.
- ✓ Understand the implications of a Permit for entrance into Substations and Live Enclosures.

Index :

1 Introduction to Safety
2 Dangers of Electricity
3 Electric Shock
4 Accidents, Serious – Obtaining Assistance
5 Accidents, Minor
6 Delegated Duties and Responsibilities
7 Definition of Terms
8 General Safety/Risk Assessment.
9 Safety Equipment and Protective Clothing
10 Substation Keys
11 Entrance into Substations and Live Enclosures
12 Barricading
13 Supervision
14 Work Permits
15 Annexures

Training Code : TR-012

Title : Exothermic Welding

Duration : 1 Day

Objective : At the end of this course candidates will be able to:

- ✓ Understand the exothermic welding principals.
- ✓ Select the correct equipment and prepare for the procedure to be carried out.
- ✓ Select the correct volume of weld metals and accessories.
- ✓ Using the protective clothing and equipment, carry out the welding in a controlled manner.

Index :

1 Easy guide to make Exothermic Connections
2 Typical Exothermic connections
3 Moulds
4 Weld Metals
5 Handle Clamps
6 Terminology Related to Exothermic Welding
7 Mould Inspection
8 Welding Process
9 Exothermic Welding Graphite Mould Inspection
10 Recommended Exo Weld Tool Kit
11 Standardising Exothermic Connections

Training Code : TR-013

Title : Fundamentals of Electricity

Duration : 1 Day

Objective : At the end of this course candidates will be able to:

- ✓ Describe the terms
- ✓ Describe the electrical parameters, including the unit of measurement and the relationship to other parameters.
- ✓ Describe methods produce a voltage.
- ✓ Describe the materials as they relate to permeability, including an example and an approximate relative permeability.
- ✓ Explain the physical qualities of a simple magnetic circuit, including relationships of qualities and units of measurements.
- ✓ Describe the shape and components of a BH magnetization curve.
- ✓ Explain the cause of hysteresis losses.

Index :

1 Atom and its forces
2 Electrical Terminology
3 Units of Electrical Measurement
4 Methods of producing voltage (Electricity)
5 Magnetism
6 Magnetic Circuits
7 Electrical Symbols
8 Basic DC Theory
9 DC Circuit Terminology
10 DC Basic DC Circuit Calculations
11 Voltage Polarity and Current Direction
12 Kirchhoff's Laws
13 DC Circuit Analysis
14 DC Circuit Faults
15 Inductance
16 Capacitance
17 Definitions

Training Code : TR-014

Title : Generation Plant Safety Rules

Duration : 2 Days

Objective : At the end of this course candidates will be able to:

- ✓ Describe the terms
- ✓ Describe the electrical parameters, including the unit of measurement and the relationship to other parameters.
- ✓ Describe methods produce a voltage.
- ✓ Describe the materials as they relate to permeability, including an example and an approximate relative permeability.
- ✓ Explain the physical qualities of a simple magnetic circuit, including relationships of qualities and units of measurements.
- ✓ Describe the shape and components of a BH magnetization curve.
- ✓ Explain the cause of hysteresis losses.

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12 Kirchhoff's Laws
13 DC Circuit Analysis
14 DC Circuit Faults
15 Inductance
16 Capacitance
17 Definitions

Training Code : TR-015

Title : Health and Safety at the Workplace

Duration : 1 Day

Objective : At the end of this course candidates will be able to:

- ✓ Apply and maintain safety in the electrical environment.
- ✓ Apply health and safety to the workplace.
- ✓ Identify and mitigate hazardous conditions.

Index : Mind Map

1 The purpose of the Act
2 Identifying potential hazards at the workplace
3 Safe Work Practice and Procedures
4 Personal Protective Equipment
5 Fire and Emergency Preparedness
6 Consolidation Questions

Training Code : TR-016

Title : High Voltage Transmission Switching Applications

Duration : 4 Days

Objective : At the end of this course candidates will be able to:

- ✓ Do Switching, linking, safety testing and earthing under fault and normal conditions. To ensure safety of personnel and apparatus and the continuity of supply.
- ✓ Understand the various types of protection relays and how to interpret their indications.
- ✓ Understand schematic diagrams.
- ✓ Correctly the different switchgear types and the operation thereon.
- ✓ Understand Tap Changer controls.

Index :

1 Introduction to Transmission Systems
2 Substation Equipment Controls and Layout
3 Definitions
4 Work in and access to Substations and Live Enclosures
5 Work in Confined Spaces or Enclosures
6 Work on Apparatus containing SF6
7 Work on Remotely and Automatically Controlled Equipment
8 Substation Keys
9 Use of MV/HV Measuring rods
10 MV/HV Operating Procedure
11 Control of MV/HV System
12 Work on MV/HV Mains and/or Apparatus
13 Work on Transformers
14 Switchgear
15 Safety Earthing
16 Testing of MV/HV Mains and/or Apparatus
17 Re-energising of Overhead Lines after the Operation of Protective Equipment
18 Issue of Permit to Work
19 Work in Conjunction with BPMC
20 Energising of new Mains and/or Apparatus
21 Emergency Procedures in the event of Fire
22 Operating Scenarios
23 Substation Investigation after Fault Conditions
24 Operating Exercise

Training Code : TR-017

Title : Locating Underground Cable

Duration : 1 Day

Objective : At the end of this course candidates will be able to:

- ✓ Understand the hazard of underground services;
- ✓ Understand the rules and regulation for excavation practice;
- ✓ Understand the fundamental of electromagnetic field;
- ✓ Understand the various function available in the transmitter and locator;
- ✓ Perform cable locating;
- ✓ Perform cable fault finding.

Index :

1 Introduction
2 Basic Electromagnetic Field
3 Active Signals
4 Selecting Frequency
5 Twin Antenna Principle
6 Current Measurement and Depth
7 Current Direction
8 Operation
9 Cable Fault Finding
10 General Locating Tips
11 Manufacturers Brochure

Training Code : TR-20

Title : Mentor Guidelines and Effective Evaluation Assessment

Duration : 1 Day

Index :

1 Introduction
2 What is meant by Evaluation?
3 Developing Evaluation Tools
4 Planning
5 Design and Development
6 Quality Checks

Training Code : TR-021

Title : MV Switching Applications

Duration : 5 Days

Objective : At the end of this course candidates will be able to:

- ✓ Demonstrate their competency in order to safely carry out switching, isolating, testing and earthing of MV Systems.
- ✓ Correctly use approved test instruments when carrying out tests.
- ✓ Apply Operating Regulations correctly when switching is undertaken.
- ✓ Understand the different switchgear mechanisms.
- ✓ Have a clear understanding of system operating diagrams.
- ✓ Understand the basic principles of power system protection.
- ✓ Complete a Permit to Work and issue correctly.

Index :

1 Course Introduction
2 Definitions
3 MV/HV Operating Procedures, (Section 9)
4 Control of MV/HV System (Duties of the Control Operator, Section 10)
5 Work on MV/HV, mains and or apparatus. (Section 11)
6 Use of Test Equipment
7 Introduction to Protection
8 Switchgear (Section 12)
9 Safety Earthing (Section 13)
10 Testing of MV/HV mains and/or apparatus (Section 14)
11 Issue of Permits to Work/Test MV/HV mains and/or apparatus
12 Consolidated questions

Training Code : TR-022

Title : Pre-payment Meters

Duration : 3 Days

Objective :

At the end of this course candidates will be able to:

- ✓ Install, wire, commission and seal and Electricity Dispenser and an Energy Control Unit neatly, correctly and safely.

Index :

1 Introduction
2 Operation of Electricity Dispensers
3 Installation of Electricity Dispensers
4 Commissioning/Verification Procedures
5 Training the Customer
6 Maintenance and Repairs to ED's
7 Consolidation Questions

Training Code : TR-023

Title : Risk Assessment and Method Statements

Duration : 2 Days

Objective :

At the end of this course candidates will be able to:

- ✓ Install, wire, commission and seal and Electricity Dispenser and an Energy Control Unit neatly, correctly and safely.
- ✓ Understand what a hazard is and identifying hazards;
- ✓ Understand when the hazard identification should be done;
- ✓ Understand different types of hazards and the consequences;
- ✓ Understand the difference between Method Statements and Risk Assessment;
- ✓ Draw up a Method Statement document based on a detailed scope of the work;
- ✓ Analyse a Method Statement and identify and control the associated hazards;
- ✓ Understand the steps in the hazard identification and control worksheet;
- ✓ Complete the hazard identification and control worksheet;
- ✓ Carry out a hazard identification based on a detailed scope of work and document it;
- ✓ Be able to successfully to develop and complete a RAMS for a detailed scope of work;
- ✓ Fully understand the importance of site inspections and compliance with the RAMS, as well as the enforcement of general safety.

Index :

1 Introduction
2 Definition
3 Responsibilities
4 Procedure
5 Hazards
6 Identifying Hazards
7 Type of Hazards in the workplace
8 Hazard and Risk Management Measures
9 Hazard Identification and Mitigation
10 BPC Standard RAMS Format
11 Observation Card

Training Code : TR-024

Title : Road Safety Awareness

Duration : 1 Day

Objective : At the end of this course candidates will be able to:

- ✓ Describe the hazards and controls that are necessary for carrying out work safely at any roadside.
- ✓ Correctly identify road traffic signs.
- ✓ Interpret the minimum requirements of the MOD HSE Manual.
- ✓ Technically place and correctly position traffic signs in order to manage traffic at the workplace.

Index :

1. Introduction
2. Responsibilities for Contractors
3. Signs
4. Site Layout Specifications
5. Speed Limits
6. Appendix
7. Consolidation Questions

Training Code : TR-025

Title : Safe Used of Mobile Tower Scaffolding

Duration : 1 Day

Objective : At the end of this course candidates will be able to:

- ✓ Identify and describe the various components of the mobile tower scaffolding system;
- ✓ Clearly define the various definitions and terms;
- ✓ Interpret the minimum requirements of the MOD HSE Manual with regard to scaffolding;
- ✓ Safely erect and disassemble scaffolding at the various work sites;
- ✓ Effectively use safety equipment and the necessary tools in order to meet all required standards;
- ✓ Carry out mobile scaffolding erection and disassembling in the correct and safe manner.

Index :

1. Introduction
2. Legislative Requirements
3. Definitions
4. Erection and Inspection
5. Scafftag Procedure
6. Hazards
7. Scaffold Register Form
8. Type of Scaffolding
9. Materials and Tools
10. Protection of Public
11. Introduction to Tubular Scaffolding

Training Code : TR-026

Title : Safe Work on Transmission Tower

Duration : 1 Days

Objective : At the end of this course candidates will be able to:

- ✓ Have a clear understanding of all risks and hazards associated with the climbing of electrical lattice towers.
- ✓ Comply with all requirements of the WSHO/2009 and regulations.
- ✓ Effectively complete required Risk Assessment documents prior to work, and to manage this process.
- ✓ Climb and carry out work safely.

Index :

1 Introduction
2 Legislative Requirements
3 Definitions
4 Identification of Equipment
5 Inspection of Equipment
6 Rescue System
7 Climbing With the Fall Arrester System
8 Rescue Plan

Training Code : TR-027

Title : Safety Rules

Duration : 4 Days

Objective : On completion of this course candidates will have a clear understanding of the DES Safety Rules of DES Safety Rules and how these rules support the Government's Health and Safety Works Order 2009 requirements.

Section :

1 Electric Shock: Procedure and Treatment.
2 Accidents, Serious: Obtaining assistance.
3 Accidents, Minor.
4 Responsibilities.
5 Definition and terms.
6 General Safety, risk assessment.
7 Basic safety restrictions.
8 Safety equipment and protective clothing.
9 Work in and access to substations and live enclosures.
10 Work in confined spaces or enclosures.
11 Work on apparatus containing SF6 (Sulphur Hexafluoride) gas
12 Work on remotely and automatically controlled equipment.
13 Cutting of underground cables that have been laid and/or installed.
14 Substation Keys.
15 Work on low voltage system (overhead lines).
16 Work on live LV mains and/or equipment.
17 Cutting and trimming of trees near overhead lines.
18 Annexures.

Intended for : All DES staff who are required to work on or in close proximity to any of the Department of Electrical Services substations, overhead lines or any other power system equipment and apparatus.

Training Code : TR-028

Title : System Operating Regulations

Duration : 4 Days

Objective : On completion of this course candidates will have a clear understanding of the DES System Operating Regulations and how these regulations support the Government's Health and Safety Works Order 2009 requirements.

The System Operating Regulations for MV/HV systems are an attempt to provide the necessary precautionary measures required to avoid the dangers which are present when you are working with MV/HV equipment.

- Ensure the safety of all persons
- Safeguard electrical apparatus from damage

Section :

1 Definition of Terms
2 Work in and access to substations and live enclosures
3 Work in confined spaces or enclosures
4 Work on apparatus containing SF_6 (Sulphur hexafluoride) gas
5 Work on remotely and automatically controlled equipment
6 Cutting underground cables that have been laid and/or installed
7 Substation Keys
8 Use of MV/HV measuring rods
9 MV/HV Operating Procedure
10 Control of the MV/HV system: duties and responsibilities of system control operator
11 Work on MV/HV mains and/or apparatus
12 Switchgear
13 Safety Earthing
14 Testing of MV/HV mains and/or apparatus
15 Re-energising of overhead lines after the operation of protective equipment
16 Issue of Work Permits
17 Work in conjunction with Berakas Power Management Company
18 Energising of new mains and/or apparatus
19 Emergency procedures in the event of fire
20 Work on gas turbine generator packages and associated plant
- Safeguard the continuity of supply

Intended for : *All DES personnel who are required to become Authorised Person for the purpose of carry out switching on the MV/HV System as part of their duty schedules*

This document is not a training module; but an integral part of the DES Safety requirement, and is to be a controlled document which is issued to all Authorised Persons after completing the day course. (See Training Directive for Authorised Persons)

Training Code : TR-031

Title : Work at Height

Duration : 1 Day

Objective : At the end of this course candidates will be able to:

- ✓ Have a clear understanding of all risks and hazards associated with the climbing of electrical lattice towers.
- ✓ Comply with all requirements of the WSHO/2009 and regulations.
- ✓ Effectively complete required Risk Assessment documents prior to work, and to manage this process.
- ✓ Climb and carry out work safely.

Index :

1 Introduction.
2 Legislative Requirements.
3 Definitions.
4 Identification of Equipment.
5 Inspection of Equipment.
6 Use of Fall Arrest System.
7 Rescue
8 Rescue Plan

Training Code : TR-032

Title : Fire Watcher

Duration : 0.5 Day

Objective : This course is for participant whom need to become a Fire Watcher or Fire Watchmen.

- ✓ All work activities declared under hot works require at least one appointed trained fire watcher when apply for hot work permit.
- ✓ As this course covers all fire emergency safety, it is suitable for participant whom need to undertake as Fire Safety Committee member such as fire wardens, for BPC Assets.
- ✓ It has been proven that a well-trained workforce not only reduces the risk of fire, but in the event of one, responds quickly and effectively to minimise the damage.

Index :

1 Introduction.
2 The Combustion Process
3 HSE Standard Operating Procedure

Training Code : TR-036

Title : Safety Rules Refresher

Duration : 2 Day

Objective : On completion of this course candidates will have a clear understanding of the DES Safety Rules of DES Safety Rules and how these rules support the Government's Health and Safety Works Order 2009 requirements.

Section :

1 Electric Shock: Procedure and Treatment.
2 Accidents, Serious: Obtaining assistance.
3 Accidents, Minor.
4 Responsibilities.
5 Definition and terms.
6 General Safety, risk assessment.
7 Basic safety restrictions.
8 Safety equipment and protective clothing.
9 Work in and access to substations and live enclosures.
10 Work in confined spaces or enclosures.
11 Work on apparatus containing SF6 (Sulphur Hexafluoride) gas
12 Work on remotely and automatically controlled equipment.
13 Cutting of underground cables that have been laid and/or installed.
14 Substation Keys.
15 Work on low voltage system (overhead lines).
16 Work on live LV mains and/or equipment.
17 Cutting and trimming of trees near overhead lines.
18 Annexures.

Intended for : All DES staff who are required to work on or in close proximity to any of the Department of Electrical Services substations, overhead lines or any other power system equipment and apparatus.

Training Code : TR-037

Title : System Operating Regulations Refresher

Duration : 2 Days

Objective : On completion of this course candidates will have a clear understanding of the DES System Operating Regulations and how these regulations support the Government's Health and Safety Works Order 2009 requirements.

The System Operating Regulations for MV/HV systems are an attempt to provide the necessary precautionary measures required to avoid the dangers which are present when you are working with MV/HV equipment.

- Ensure the safety of all persons
- Safeguard electrical apparatus from damage

Section :

1 Definition of Terms
2 Work in and access to substations and live enclosures
3 Work in confined spaces or enclosures
4 Work on apparatus containing SF_6 (Sulphur hexafluoride) gas
5 Work on remotely and automatically controlled equipment
6 Cutting underground cables that have been laid and/or installed
7 Substation Keys
8 Use of MV/HV measuring rods
9 MV/HV Operating Procedure
10 Control of the MV/HV system: duties and responsibilities of system control operator
11 Work on MV/HV mains and/or apparatus
12 Switchgear
13 Safety Earthing
14 Testing of MV/HV mains and/or apparatus
15 Re-energising of overhead lines after the operation of protective equipment
16 Issue of Work Permits
17 Work in conjunction with Berakas Power Management Company
18 Energising of new mains and/or apparatus
19 Emergency procedures in the event of fire
20 Work on gas turbine generator packages and associated plant
    - Safeguard the continuity of supply

Intended for : *All DES personnel who are required to become Authorised Person for the purpose of carry out switching on the MV/HV System as part of their duty schedules*

This document is not a training module; but an integral part of the DES Safety requirement, and is to be a controlled document which is issued to all Authorised Persons after completing the day course. (See Training Directive for Authorised Persons)

Training Code : TR-038

Title : Low Voltage System Applications Domestic & Commercial Installations

Duration : 3 Days

Objective : At the end of this course candidates will be able to:

- ✓ Have a clear understanding of definition of terms;
- ✓ Have an awareness of workplace safety practices;
- ✓ Understand Electrical Drawings and Symbols;
- ✓ Correctly interpret the EIR Regulations;
- ✓ Have a clear understanding of Safe Isolation;
- ✓ Have a clear understanding of Lock-Out Procedures;
- ✓ Correctly complete and issue LV Permit to Work;
- ✓ Be competent in Fault Finding and Trouble Shooting Procedures;
- ✓ Clearly understand Testing and Inspection Procedures;
- ✓ Have a clear understanding of standby generator safety;
- ✓ Reference SHENA Standby Generation Guideline.

Index :

1 Introduction
2 Workplace Safety
3 Definitions
4 Electrical Drawings and Symbols
5 Introduction to the electrical installation requirements (EIR)
6 Safe Isolation risk assessment of low voltage systems
7 Isolation and permits
8 Low voltage permit to work
9 Residual current devices (RCD's)
10 Troubleshoot Electrical Wiring Problems
11 Inspection and Testing Procedures
12 Standby Portable Generator Connection
13 Summary of Brunei Industry Guide Notes

Career Development Training Matrix		
Discipline	Subject Matter	
	Mandatory	Job Specific
Competent Person LV	First Aid Level 2	Street Lighting
	Basic Electricity	Cable Trenching and Laying
	Use of Measuring Instruments	Electrical Installation Regulation (EIR)
	LV System Applications	*Chainsaw Operation
	Cable Jointing LV	
	Safety Rules	
	Fall Arrest/ Ladder Safety	
	Health and Safety at the Workplace	
Competent Person MV	First Aid Level 2	Cable Identification/Cable Spiking
	Safety Rules and System Operating Regulations	Battery Maintenance
	MV System Applications	Basic Power System Protection
		*Switchgear Maintenance
		*MV ABC Line Construction
		*Cable Fault Location
Competent Person HV	First Aid Level 2	Cable Identification/Cable Spiking
	Safety Rules and System Operating Regulations	Battery Maintenance
	Basic Power System Protection	Erection of Scaffolding
	HV System Maintenance	Work At Height (OHTL)
	Barricading	*Work on Automatic Tap Changers
	Ladder Safety/ Fall Arrest Systems	*Exothermic Welding (CAD Welding)
System Control Operator	Safety Rules and System Operating Regulations	
	MV System Applications	
	HV System Application	
	Basic Power System Training	
	*SCADA Training	
MV Cable Jointers (11kV)	First Aid Level 2	
	Safety Rules and System Operating Regulations	
	MV Cable Jointing and Termination	
	MV Cable Trenching and Laying	
	Roadside Safety	

Career Development Training Matrix		
Discipline	Subject Matter	
	Mandatory	Job Specific
HV Cable Jointers (66kV)	First Aid Level 2	
	Safety Rules and System Operating Regulations	*Fault Location
	Cable Jointing and Terminations	*Pressure Testing
	Cable Trenching and Laying	
	Roadside Safety	
Contractors LV	First Aid Level 2	
	Safety Awareness for Contractors	Safety Rules and System Operating Regulations
	Fall arrest Systems/ Ladder Safety	ABC Construction
		LV Bare Overhead Construction
		Electrical Installation Regulations (EIR)
		Roadside Safety
		Erection of Scaffolding
Authorised Person MV	First Aid Level 2	And Any Other Duties Required to meet the Job Description
	Safety Rules and System Operating Regulations	
	MV System Applications	
	Cable Identification/ Cable spiking	
	Basic Power System Protection	
*All MV Trainee Authorised Persons to only be appointed once they have been appointed as Competent Person in their various disciplines.		
*All HV Trainee Authorised Persons to be appointed once they have appointed as Competent Persons in their various disciplines.		
*Control Operators are to complete their prescribed training in the field as MV or HV Authorised Persons.		